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REPORT OF CHIEF OF BUREAU OF BIOLOGICAL SURVEY.

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF BIOLOGICAL SURVEY,
Washington, D. C., September 10, 1914.

SIR: I have the honor to submit herewith a report on the work of the Biological Survey for the fiscal year ended June 30, 1914.

Respectfully,

HENRY W. HENSHAW,
Chief, Biological Survey.

Hon. DAVID F. HOUSTON,
Secretary of Agriculture.

WORK OF THE BIOLOGICAL SURVEY.

During the year the work of the Bureau of Biological Survey was conducted along four principal lines: (1) Investigations of the food habits of North American birds and mammals in relation to agriculture; (2) biological investigations with special reference to the geographic distribution of native animals and plants; (3) supervision of national bird and mammal reservations, the preservation of native wild game, and the enforcement of the Lacey Act; (4) administration of the Federal migratory bird law.

ECONOMIC INVESTIGATIONS.

PRAIRIE DOGS IN NATIONAL FORESTS.

Campaigns for the extermination of prairie dogs in National Forests were conducted during the year in the Pike and Cochetopa Forests in Colorado, the Coconino Forest in Arizona, and the La Sal and Sevier Forests in Utah. In the two Colorado Forests work will be completed early in the present fiscal year. As a result of the methods worked out by the bureau, prairie dogs have been completely exterminated over large areas where once they were common, and now only an occasional animal is seen in places where a year or two ago hundreds were in sight at one time. Following the destruction of a large proportion of the prairie dogs by poison, predatory birds and animals exterminated those remaining.

Experiments were made in the Sevier Forest in May, when two days' work resulted in clearing large areas to such an extent that in a careful reconnoissance a week later no dogs were seen or heard where before they were very numerous.

In the La Sal Forest preliminary work was started in the spring. Future work will consist mainly in exterminating scattering colonies throughout the valleys and bench lands along the streams.

BURROWING RODENTS ON RECLAMATION PROJECTS.

In the Strawberry Valley Project of the United States Reclamation Service, near Provo, Utah, burrowing animals have caused extensive washouts in dikes and fills. Reconnoissance work was begun there in the autumn, and during the spring active operations were carried on with such good results that it is believed little trouble from burrowing rodents will in future be experienced.

MOLES IN THE NORTHWEST.

In the States of Oregon and Washington moles are so numerous in certain sections that their burrows interfere materially with the cultivation of crops. Investigations are now being made with a view to the discovery of effective methods of dealing with the pests.

GROUND SQUIRRELS IN CALIFORNIA NATIONAL FORESTS.

Active campaigns of extermination were carried on during the year against ground squirrels in portions of the Monterey, Santa Barbara, San Benito, Kern, and Sequoia National Forests. The success of this work encouraged ranchmen and land owners adjoining the Forests to cooperate with the bureau and also to carry on independent campaigns to exterminate the animals on their holdings. As a consequence, on thousands of acres which once supported squirrels in abundance it is now difficult to find more than an occasional individual.

GROUND SQUIRRELS IN NORTH DAKOTA.

Though it is one of the smaller squirrels, the Richardson ground squirrel has become so destructive in North Dakota that State authorities have requested cooperation of the bureau for devising methods of control. As soon as the animal emerged from hibernation an assistant was detailed on the problem, and effective poisoned baits were successfully prepared.

RODENTS AS ENEMIES OF REFORESTATION.

One of the greatest hindrances in reforesting, either by reseeding or by planting nursery stock, is presented by the noxious rodents that follow in the wake of planters and dig up and devour seeds or gnaw the bark of saplings. Extermination of these rodents locally has been found absolutely necessary to successful reforestation.

During the winter, at the request of the Forest Service, experiments for the control of seed-eating rodents were carried on in the National Forest near Ocala, Fla., and at the Converse nursery in southern California. These have resulted in the collection of much useful information.

JACK RABBITS IN THE NORTHWEST.

During the year extensive damage was done by jack rabbits in southern Idaho and eastern Oregon and Washington, and many urgent requests for aid were received from the farmers of the region.

Three assistants were detailed to visit the infested sections and to demonstrate the efficacy of strychnine baits in reducing the numbers of the pest. These demonstrations were so successful that in one rather restricted region over 50,000 rabbits were destroyed. It is believed that by commencing the work as soon as winter sets in the ravages of these animals can be greatly reduced if not altogether controlled.

CRAWFISH IN MISSISSIPPI AND ALABAMA.

During the year experiments in destroying crawfish were conducted on two plantations near Muldon, Miss., and on one near Macon, in the same State. These experiments demonstrate that crawfish, a well-known pest of cotton and corn crops of this region, can be completely controlled by the use of carbon bisulphide. If the infested areas are treated after they are prepared for planting, and again after the seed is sown, the crawfish which escape are so few that they do little damage. At Muldon, where operations have been carried on for the last three years, a number of planters are following the methods recommended by the bureau.

FOOD OF WILD DUCKS.

The growing scarcity of waterfowl and the draining of many of their former feeding grounds for agricultural purposes have greatly stimulated efforts to increase their numbers under semidomestic conditions and to provide sustenance for both wild and propagated birds by growing in suitable places the plants which formed their favorite natural food. During the year a second bulletin on important wild-duck foods, Department Bulletin No. 58, was issued, and supplied on request to State game associations, game protective associations, and individuals interested in the practical protection, preservation, and propagation of native ducks and geese.

RELATION OF BIRDS TO THE BOLL WEEVIL.

In order to learn to what extent birds prey upon the boll weevil in newly infested territory, bird stomachs were collected during the last two field seasons in certain sections in Alabama and Mississippi. From a study of two-thirds of this material it is evident that birds find and prey upon the cotton boll weevil immediately upon or soon after its advent into a new region. The investigation has added 11 species to the list of known bird enemies of this pest, making a total of 64.

RELATION OF BIRDS TO THE ALFALFA WEEVIL.

All of the stomachs collected during the investigation of the relations of birds to the alfalfa weevil in Utah and adjacent States have been examined and a report upon the subject has been issued.

Forty-five species of birds, as well as frogs, toads, and a salamander, were found to feed on the beetle. The most active enemies of the weevil among birds are the Brewer blackbird, the western meadowlark, the valley quail, and the English sparrow. Of vertebrate enemies other than birds, the Rocky Mountain toad renders good service

in destroying breeding adult insects in the spring and larvæ later in the year, when the alfalfa crop is being harvested. These valuable batrachians should therefore be carefully protected in the infested districts and their numbers should be increased so far as possible.

RELATION OF BIRDS TO THE RANGE CATERPILLAR.

During the summer of 1913 an assistant of the Biological Survey collected stomachs of about 600 birds and 100 mammals in a part of New Mexico badly infested by the destructive range caterpillar. About five-sixths of this collection have now been examined. The results seem to prove that birds are of no value as enemies of the full-grown caterpillars; it remains to be seen whether they are of greater importance during the early stages of the life of the insect. Mammals, on the other hand, as indicated from the evidence collected, are important enemies of this pest. This is particularly true of the skunk.

ECONOMIC STATUS OF OTHER BIRDS.

Examination of the collection of stomachs of thrashers, mocking birds, and wrens was largely completed, and investigation of the economic status of the crow and English sparrow progresses steadily. As the collection of stomachs of the last-named species is much larger than that upon which the original printed reports were based and represents a much greater extent of country, it is expected that the conclusions derived from the present work will have a more permanent value.

EUROPEAN STARLING.

For several years the bureau has been accumulating data on the food and general habits of the European starling for the purpose of determining the economic status of the species in this country. Introduced into the United States nearly 25 years ago, the bird has gradually extended its range from New York City, and now it is found in the neighboring States of Connecticut, New Jersey, New York, Pennsylvania, and Massachusetts. During its migrations in search of food it ranges much farther from the original center and occurs in considerable numbers as far south even as the District of Columbia.

The starling is markedly insectivorous, especially in summer, and preys upon many noxious varieties. In this respect it is to be classed among our useful birds. So far as is known, it has not proved destructive to grain crops, but it is known to be very fond of small fruits, and as it associates in large flocks it is likely to become a pest to the orchardist. In addition, it prefers tree cavities, boxes, or recesses in buildings for nesting sites and thus is brought into direct competition with certain of the useful native birds, more particularly the bluebird, purple martin, white-bellied swallow, house wren, and flicker.

The bird is steadily extending its territory, and it will be wise to withdraw all protection from it, as has already been done in Connecticut, New Jersey, New York, and Pennsylvania, including the center of its abundance, with a view of checking its increase and spread. The shipment of these birds from one State to another has been prohibited under heavy penalty by act of Congress. Under

ordinary circumstances, even after all protection is withdrawn, the bird will probably prove to be capable of taking care of itelf. That ultimately it will spread over a large part of the United States is highly probable.

BIRDS OF PORTO RICO.

An investigation of the birds of Porto Rico was made in 1912–13 at the request of and in cooperation with the Board of Commissioners of Agriculture of the island. Examination of the stomachs of birds collected has now been completed, and a report of their habits and economic relationships is practically ready for publication.

BIRDS OF PANAMA.

An assistant of this bureau participated in the biological survey of the Canal Zone made under the direction of the Smithsonian Institution, and in the course of his work preserved the stomachs of a considerable number of birds. Examination of these stomachs has been begun with a view of ascertaining the economic relations of birds inhabiting the zone, especially the extent to which they destroy disease-carrying insects like mosquitoes.

FUR-BEARING ANIMALS.

Up to the present time experiments in breeding fur bearers have been carried on only with minks and martens. At the two stations—Prichard, Idaho, and the National Zoological Park—minks have bred, and the healthy condition of the young animals promises success. The stock of martens was secured too late for the animals to breed this season. In the coming year it is intended to add raccoons, skunks, and possibly foxes to the list of animals to be included in these experiments.

During the spring an assistant visited New Brunswick, Prince Edward Island, and other portions of the eastern British Provinces and New England for the purpose of studying the methods in vogue in the region for rearing foxes and other fur bearers. Data on improved methods of raising foxes will soon be published, to bring up to date preliminary information furnished in 1908 in Farmers' Bulletin 328, Silver Fox Farming.

Moleskins have been extensively used in this country during the last few years in making fur garments, and practically all of the supply has been imported from Europe. In the belief that the common mole of eastern United States produces fur of equal value, skins were submitted to professional furriers, who stated that the quality is superior to the foreign product. A report on the economic status of the eastern species was published during the year. The mole inhabiting the northwestern coast is larger than the common eastern species, and a number of these have been collected in order to obtain a report on the quality of the pelt. If the texture of the fur proves to be as good as that of the eastern animal, there is no reason why trappers should not secure a good income by capturing these animals, as the area they inhabit is extensive. In many localities an acre of ground supports as many as a hundred individuals. If this little animal can be profitably trapped for its fur the problem of freeing agricultural areas from it will practically be solved.

Investigations into the economic value of North American skunks resulted in the publication of a Farmers' Bulletin on the subject. It has been found that this animal is one of the most useful of native mammals and a most efficient help to the farmer and the orchardist in their warfare against insect and rodent pests. As a source of fur it is also a commercial asset, the skins netting trappers about $3,000,000 annually. As the skunk is valuable in its activities as well as for its fur, experiments in breeding the animals in captivity are recommended.

METHODS OF ATTRACTING BIRDS.

During the last winter an assistant visited the principal herbaria of New York and New England for the purpose of gathering information on the ripening seasons of fruits which supply food for birds. A large amount of valuable data was obtained for use in a publication, now in press, on methods of attracting birds in northeastern United States, for which information there is great demand.

The bureau is also preparing a publication on the construction of nesting boxes for insect-eating birds, which will soon be ready for distribution as a Farmers' Bulletin.

BIOLOGICAL INVESTIGATIONS.

Field investigations of the distribution and habits of native birds and mammals have continued throughout the year. Good progress has been made in collating and arranging under a card-index system the vast number of manuscript notes which have been accumulating during the years of field work of the bureau. In the near future all of this information will be fully indexed and more readily available for reference in connection with the administration of the Lacey Act and the migratory bird law, game preservation and economic investigations of this bureau, and to supply data constantly requested by individuals and institutions throughout the United States.

DISTRIBUTION MAPS OF BIRDS AND MAMMALS.

The preparation of maps showing in detail the distribution of each species of native birds and mammals has been continued. The work has already demonstrated its usefulness, both in ascertaining the economic relations of the several species and in planning for their conservation. A set of specimen distribution maps of important birds and mammals is nearly completed for the United States Government exhibit at the Panama-Pacific International Exposition to be held at San Francisco.

DISTRIBUTION MAPS OF NOXIOUS ANIMALS.

It is planned to secure accurate information concerning the location and extent of territory infested by various animal pests to serve as a basis for campaigns for their destruction. Mapping of the area occupied by prairie dogs in northeastern Arizona was begun in the spring of 1914 and is progressing rapidly. Farmers and stock growers throughout this region are taking much interest in the work and express a general desire to cooperate in the destruction of these animals.

BIRD MIGRATION.

In gathering first-hand observations on the migrations of birds, this bureau is aided by some 250 volunteer observers, located in different sections of the country. This cooperative work is of great assistance in platting migrations of species, and it is hoped to extend it. The resulting information is of much value, as shown by the fact that the data made possible the prompt formulation of regulations for administering the Federal migratory bird law. Much work, however, still is needed before the knowledge of the migratory movements of the many species of birds in this country will be complete.

BIRD CENSUS.

A plan for securing a census of the birds breeding within the United States was prepared and notices distributed among correspondents of the bureau early in the spring. The plan contemplated that each area selected should be located by definite boundaries in order that a similar annual census might be taken on the same area through a series of years for the purpose of learning what fluctuations, if any, occur in bird life, and of having a check on any changes due to the increase or decrease of species locally.

A considerable number of volunteer observers have taken up this work and many excellent reports already have been received. The results promise information of great practical value in connection with bird conservation.

BIOLOGICAL SURVEYS.

During the year the biological survey of Oregon was begun in cooperation with local institutions and is being pushed vigorously. The cooperative biological survey of North Dakota and the surveys of Alabama and Arizona were continued, and a small amount of work was done in a few other States. The cooperating institutions in Oregon have shown great interest in the survey and are expending much more money on the work than is this bureau. This cooperation follows plans formulated by the bureau, and all the information secured is to be available for publication by the department. This is also the case in North Dakota, where a similar lively interest in and appreciation of the value of the work is being shown by State institutions. A preliminary bulletin on the economic relations of the mammals of North Dakota to agriculture has been prepared and will be published by the State agricultural college. Field work on the biological survey of Wyoming has been completed and arrangements made for the preparation of the final report on the physiography and life zones of that State.

DISTRIBUTION AND HABITS OF LARGE GAME.

Considerable additions during the year have been made to the knowledge of the distribution and habits of the large game animals of North America. Owing to the decrease of these animals, it is necessary to secure accurate information concerning their present habitat and numbers with a view of preventing the extinction of the

species. The bureau has been fortunate during this year in the active cooperation of a number of men interested in the conservation of large game. Under the direction of the bureau, these men have expended time and money in conducting field investigations in the United States, Alaska, and various parts of Canada, the information and material obtained for study having become the property of the department.

TECHNICAL INVESTIGATIONS.

The Biological Survey is becoming a recognized center of information concerning the birds and mammals of North America, and individuals and institutions send in large numbers of specimens to be identified. State and county officials also forward skins and scalps offered for bounty to insure correct identifications in order to prevent fraud. In addition, specimens of noxious mammals are frequently forwarded for identification and advice as to proper methods of protection of crops. Technical study also has been made during the year of a number of groups of birds and mammals which were insufficiently known.

GAME PRESERVATION.

ENFORCEMENT OF THE FEDERAL MIGRATORY BIRD LAW.

The Federal migratory bird law (37 Stat., 847), approved March 4, 1913, authorized the department to prescribe suitable regulations for fixing close seasons on migratory game and insectivorous birds, and the Biological Survey was charged with carrying into effect its provisions. On June 17, 1913, proposed regulations as drafted by a committee of the bureau appointed for that purpose were approved by the Acting Secretary of Agriculture and published June 23. During the three months required by law for their consideration, public hearings were held in Omaha, Nebr.; Boston, Mass.; Trenton, N. J.; New Orleans, La.; and Washington, D. C. After amendments, the regulations were finally approved by the Secretary of Agriculture on September 27, 1913, and on October 1 were promulgated by the President, becoming effective at once. They were immediately given wide publicity and every effort was made to advise sportsmen and others as to the close seasons established.

As the appropriation for enforcement of the law was but $10,000, only seven field inspectors were appointed, but through cooperation with the various State game commissioners, 172 game wardens of various States were placed on the rolls of the department as Federal wardens at a nominal salary.

While the limited number of field men available for investigations and for making arrests for violations of the law were unable to accomplish all that could be desired, a large part of their time was devoted to educational work with a view to familiarizing the public with the regulations and the purposes of the law.

There has been little active opposition to the enforcement of the regulations, but the death of one warden in the performance of duty near Tappan Borough, N. J., on October 23, has to be reported.

While the regulations have met with some criticism by sportsmen in a few States, they have been indorsed by the majority of bird

conservationists and sportsmen of the country, as well as by leading journals, as the most important step ever taken in the conservation of bird life in this country.

Reports from various sections confirm the assertion that if migratory game birds are not disturbed in their spring flight a large increase in their numbers will follow. Already migratory waterfowl have been reported as nesting in sections of the country where for many years they have been absent during the breeding season.

NATIONAL BIRD RESERVATIONS.

Two national bird reservations have been established by Executive order during the past year—Anaho Island, in northwestern Nevada, and Smith Island, in Washington—making to date a total of 65 reservations.

Conditions on most of the important bird reservations during the past year have been favorable.

Forrester Island, Alaska.—At this reservation the bureau maintained regular warden service as in former years, during the fishing season, to prevent disturbance of bird life. Cooperation here between the Bureau of Fisheries and the National Association of Audubon Societies resulted in the first investigation of the economic relations of various species of birds on the island, with particular reference to their feeding on fish. It is understood that a report on the subject will be published by the Bureau of Fisheries.

Mosquito Inlet, Fla.—An experiment in feeding waterfowl at this reservation was made early in the spring in an endeavor to induce birds to remain on the reservation where they would be undisturbed. A quantity of shelled corn and other food was placed in the water by the warden, and while the experiment was not carried far enough to fully determine its efficacy, the reports indicate that feeding earlier in the season and on a larger scale will probably prove successful.

Niobrara, Nebr.—On this reservation 24 Chinese ring-neck pheasants were placed, which were obtained from the Oregon fish and game commission; and 12 Canadian wild geese secured in the vicinity of Charleston, Mo., where the birds are raised chiefly for live decoys.

Pelican Island, Fla.—An extraordinary phenomenon on the Pelican Island Reservation, following an unusually early nesting, was the desertion of young birds by their parents before they were able to care for themselves. Investigations failed to give a satisfactory solution of the cause of this singular action upon the part of the parent birds. Pelicans are usually devoted parents.

A novel and important feature in connection with reservations has been the taking of moving pictures of bird life. Permits to "hunt with the camera" are granted only after eggs have hatched, and operators are allowed to work only when accompanied by a warden, in order that the birds may not be unduly disturbed. The three reservations visited for this purpose were Malheur Lake and Klamath Lake, Oreg., and Clear Lake, Cal.

NATIONAL BISON RANGE.

With an addition of 19 calves born to the herd of buffalo on the National Bison Range during the past year, the total number of the

herd is now 115. It is difficult to ascertain the number of elk on the range, but 25 head have been observed by the warden in charge, an increase of 1 over last year. There were 9 antelope on the range at the end of the fiscal year, but the number of young born in the past spring is not yet known. No animals have died during the year.

Weather conditions during the spring were ideal, and an abundance of bunch grass and other feed was the result. Many improvements have been made, roads have been repaired, trails cleared, and a telephone line 2 miles long constructed to connect with the Flathead Co.'s lines.

ELK REFUGE IN WYOMING.

Negotiations have been practically consummated for the purchase of a tract of land for a winter elk refuge in Jackson Hole, Wyo., authorized by act of March 4, 1913 (37 Stat., 828), but title to the land has not yet been secured.

NIOBRARA GAME RESERVATION.

Conditions on the Niobrara Reservation have been exceptionally favorable, and all the animals are in good condition. The reservation continues to be an attraction to citizens of the State, as is evidenced by the large number of visitors. The 37 animals now on the reservation include 10 buffalo, 23 elk, and 4 deer. Since their arrival there has been an increase of 2 buffalo, 7 elk, and 1 deer. The only loss so far reported was that of a young elk, which died during the winter. The additional deer was purchased from the park department of Council Bluffs, Iowa.

WIND CAVE GAME PRESERVE.

Through cooperation of the American Bison Society, 14 buffalo, 7 males and 7 females, donated by the New York Zoological Park, were successfully shipped by express on November 25 to the Wind Cave Preserve, near Hot Springs, S. Dak. Sufficient land has been acquired and added to the preserve to insure a permanent water supply. With the 21 elk transferred from Jackson Hole, Wyo., and a deer recently purchased, there are now 36 animals on the preserve. Contracts have been let for the construction of a strong woven-wire fence, 88 inches in height and 8.67 miles in length, to inclose 4,160 acres of the preserve.

FEEDING AND TRANSPORTING ELK.

Owing to the unusually mild winter in the Jackson Hole region in Wyoming, and a fall of snow below the normal, the migration of elk to the feeding grounds was not large. Feeding of elk began January 30 and continued until March 28, during which time about 550 tons of hay were used and a total of 6,150 elk fed. The loss of elk at the feeding grounds was normal.

Only 241 elk were captured in Jackson Hole, 84 by the game authorities of Wyoming for distribution in that State and 157 by the Biological Survey for distribution to National and State game reservations, all being hauled to Victor, Idaho, for shipment. The first

shipment under the supervision of this bureau was made March 10 and consisted of 50 head for distribution in the National Forests in Colorado. The next shipment of 46 was made March 13 for distribution in the National Forests in Utah. On March 23 a shipment of 23 elk was made to the newly created State preserve in Custer County, S. Dak., and on the same date an agent of the bureau shipped 21 head to the Wind Cave Game Preserve near Hot Springs, S. Dak. All of these shipments, some by freight and some by express, were made without loss.

Reports indicate that there were but slight winter losses among the elk not fed, owing to the absence of severe snowstorms. No census of elk was made this year in the Jackson Hole region, as the mild weather conditions prevented an accurate count of the widely scattered animals, but there is reason to believe there has been a substantial increase in the herd.

TRANSFER OF REINDEER IN ALASKA.

Through cooperation with the Departments of the Interior and the Treasury, the project of stocking with reindeer a part of the Aleutian Islands Reservation was carried out under the supervision of Commodore G. R. Salisbury, United States Navy, retired. It was planned to transfer a number of reindeer from Ugashik, on the Alaska Peninsula, to the reservation, one-half to be placed on Attu Island and the remainder on Umnak Island. On September 8 the revenue cutter *Manning* left Portage Bay with 65 reindeer aboard. Very rough weather was experienced and in consequence many of the animals refused to eat, 8 of them dying. In was therefore decided to place a herd of 21 on Dutch Harbor Island instead of Attu, and to land the remainder, 36 head, at Umnak. Seventeen of the 21 reindeer landed on Dutch Harbor were observed by the native herder in charge on April 22, but no report has been received concerning the condition and number of the herd left at Umnak, as no herder could be stationed there.

IMPORTATION OF BIRDS AND MAMMALS. 1914

In supervising the importation of birds and mammals inspectors are maintained at New York, Philadelphia, and San Francisco. During the year 529 permits were issued, an increase of 38 over 1913, and 211 inspections were made as against 179 in 1913. In all 475,392 birds and 10,602 mammals were imported under permit. Among these were 368,676 canaries, 36,760 partridges, 4,148 pheasants, 2,940 miscellaneous game birds, and 62,868 miscellaneous nongame birds.

At Honolulu 50 permits were issued for the entry of 745 birds, principally pheasants.

There was a noticable increase in the importation of partridges, as a number of States, including Iowa and Oregon, are experimenting in the introduction of these game birds for restocking purposes.

No Mexican quail were imported during the year. Permits were not issued at any port along the Mexican border, as it was necessary to prevent diseased birds from being admitted, no inspection service being maintained there. The issuance of permits for Mexican quail will probably be resumed during the winter months at Brownsville,

Tex., when danger of disease is at a minimum. The birds will be kept there in quarantine for at least 10 days before being shipped north.

A decided increased importation of foxes from Canada was noticeable, in most instances for breeding purposes.

No prohibited species were presented for admission, and so far as is known none gained entry during the year.

INTERSTATE COMMERCE IN GAME.

Enforcement of sections 242, 243, and 244 of the Criminal Code, known as the Lacey Act, relating to interstate traffic in game, resulted in the investigation of over 400 cases, of which there are 74 still pending. About 180 cases were reported during the year involving violations of law in the States of Delaware, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Minnesota, New York, North Carolina, Ohio, Tennessee, Virginia, West Virginia, and Wisconsin, and in the District of Columbia, two-thirds of the cases being from the States of Kentucky, Tennessee, and Virginia.

The pending cases involve interstate shipments of over 25,000 quail, about 1,500 partridges, nearly 1,700 pheasants, and more than 250 miscellaneous game birds. The cases under investigation are concerned with shipments of about 18,500 quail, more than 8,000 reedbirds, and about 2,000 other game birds. The cases disposed of involved the illegal shipping of more than 49,000 quail, over 5,000 partridges, and about 1,700 pheasants.

The bureau has continued in every possible way to assist State authorities in putting a stop to illegal shipments of game.

PUBLICATIONS.

The publications of the bureau during the year have included two North American Faunas, two Department Bulletins, two Farmers' Bulletins, and various circulars and announcements.

Reports relating to general work on birds and mammals nearly completed or in process of preparation include North American Faunas on Birds of Porto Rico, Birds of Texas, and Revisions of North American Marmots, and of North American Moles; Department Bulletins on Birds in Relation to the Alfalfa Weevil, and Distribution and Migration of North American Rails and Their Allies; and Farmers' Bulletins on Bird Houses, Bird Attraction, and Pocket Gophers.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914